

C4G BLIS User Guide

Computing For Good

C4G BLIS Team

2008 - 2024

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1. C4G BLIS

C4G Basic Laboratory Information System is a collaboration between Computing-for-Good (C4G) at Georgia Tech, the Center for Disease Control (CDC), and participating PEPFAR countries.

- [BLIS Home Page](#)
- [BLIS User Guide](#)
- [BLIS Developer Guide](#)
- [BLIS GitHub Repo](#)

You may download a copy of this documentation at this link: [C4G BLIS Documentation](#)

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2. Frequently Asked Questions

2.0.1 Q: I'm using BLIS for Windows and everytime I try to run the executable, it crashes! What's going on?

A: Ensure that the zipped files from the Runtime.zip are extracted directly into the BLIS directory. They should not remain in a Runtime folder.

2.0.2 Q: I am trying out BLIS. How do I login?

A: Please login using the credentials: testlab1_admin/admin123 (as admin) or testlab1_tech1, testlab1_tech2/tech123 (as lab technician).

2.0.3 Q: How do I look up a patient in our system?

A: Navigate to the Registration tab and search for the patient by name, number, or ID.

The screenshot shows the top navigation bar of the Basic Laboratory Information System v3.8. The user is logged in as testlab1_admin. The navigation tabs are Home, Registration, Results, Search, Inventory, and Backup Data. The 'Registration' tab is active. Below the navigation bar, the text 'Patient Look-up' is displayed. A description states: 'This page allows us to register new patients or lookup existing patients based on name, patient ID or number.' Below this is a search form with a dropdown for 'Patient Name', a dropdown for 'Contains', an input field, and a 'Search' button. A 'Page Help' link is visible on the right.

2.0.4 Q: How do I add a new patient?

A: To add a new patient, navigate to the Registration tab. Do not enter anything into the search bar and click 'Search'. You will see an option to add new patient appear. Click the link to proceed.

The screenshot shows the same interface as the previous one, but with the search bar containing 'Jane Doe'. Below the search bar, an orange box displays the message 'No match found - Name Jane Doe'. Below this message, a blue link is visible: 'If not this name 'Jane Doe' Add New Patient*'. A red circle highlights this link. The 'Page Help' link is also present on the right.

2.0.5 Q: How do I add a new Specimen to a patient?

A: After pulling open the patient's profile, click the 'Register New Specimen' hyperlink on the righthand side.

Basic Laboratory Information System v3.8 Logged in as: testlab1_admin | Edit Profile | Work as Manager | Logout

Home | Registration | Results | Search | Inventory | Backup Data

Patient Profile | < Back

| | |
|---------------|--------------------------|
| Name | John Doe |
| Gender | M |
| Age | 55 Years |
| Date of Birth | 1967-03-22 (approximate) |

[Register New Specimen](#)

[Update Profile](#)

[Print Patient Report](#)

[Print Patient Barcode](#)

[Billing Report](#)

Test History

| Type | Lab Receipt Date | Status | | | | |
|-------------|------------------|-----------|-------------------------|------------------------|--------------------------|-------------------------------|
| Stool | 22-03-2022 | Completed | Details | Report | Delete | Print Barcode |
| Whole Blood | 22-03-2022 | Completed | Details | Report | Delete | Print Barcode |
| Whole Blood | 22-03-2022 | Removed | Details | Report | Retrieve | Print Barcode |

2.0.6 Q: How do I change the language of BLIS?

A: You can change the language to either the English or French version by clicking on the preferred language in the footer menu.

Basic Laboratory Information System v3.8 Logged in as: testlab1_admin | Edit Profile | Work as Manager | Logout

Home | Registration | Results | Search | Inventory | Backup Data

Home

Welcome, testlab1_admin.

The Basic Laboratory Information System (BLIS) tracks patient specimens and laboratory results.

Tips

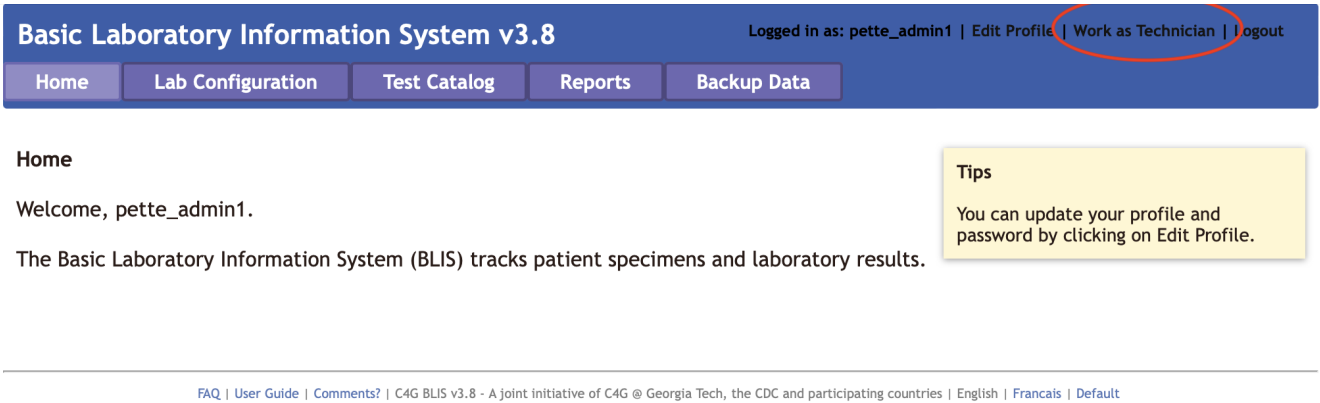
You can update your profile and password by clicking on Edit Profile.

[FAQ](#) | [User Guide](#) | [Comments?](#) | C4G BLIS v3.8 - A joint initiative of C4G @ Georgia Tech, the CDC and participating countries | [English](#) | [Francais](#) | [Default](#)

BLIS has several language options to cater to a diverse community, and we're still working to implement our changes in all of them! Thank you for your patience.

2.0.7 Q: I'm logged in as an admin user but I want to work as a lab technician. How do I switch to the technician interface?

A: The *Work as Technician* option can be selected from the top right side of the header next to the logout button.



2.0.8 Q: What are the different lab tests that BLIS can be used for?

A: The lab tests that BLIS can be used for are configured by your administrator, so they vary from lab to lab. Check with you local administrator for more information.

2.0.9 Q: How do I add new BLIS users to the system?

A: An administrator can add new users. The types of users can also be configured. To add a new user, you must be logged in as an administrator. Go the the *Lab Configuration* tab and select the *User Accounts* option (from this page you can also add new user types, e.g. technicians or administrators. Click on *Add New Account* and fill out the form that pops up to add a new user. Be sure to click the *Add* button, not *Close* at the bottom of the form. permissions.

Summary

Tests

Search

Reports

Results

Sites

Inventory

Barcode Settings

Billing

User Accounts

Page Help

User Accounts [Add New Account](#)

| # | Username | Type | | |
|----|--------------|----------------|----------------------|------------------------|
| 1. | pette_admin1 | Lab Manager | Edit | Delete |
| 2. | sidney | Lab Technician | Edit | Delete |

User Types | [Add New User Type](#)

| Level | Type | Default | | |
|-------|----------------|---------|----------------------|------------------------|
| 1. | Lab Technician | Yes | Edit | Delete |
| 2. | Lab Manager | No | Edit | Delete |

New Lab User

* Mandatory Field

Username *

Temp Password *

Type *

Writeable Options *

| | | | |
|----------------------|--------------|------------------|-------------|
| Patient Registration | Test Results | Search Inventory | Backup Data |
| Y | Y | Y | Y |

Name

Email

Phone No.

Language

Display Name at Results Entry?

 Yes

CLOSE X

3. User guide

3.1 Introduction

The Basic Laboratory Information System (BLIS) is a freeware Web-based system that can be installed in a local, district, or national laboratory. It is a tool that can help to standardize data, which improves the ability to run useful reports and can both give a realistic picture of laboratory services and assist with staff and budget planning. With enough data, BLIS can be used to track disease prevalence over time.

Features of BLIS

- One-time entry of each unique patient
- Standardization of data collected (allowable entries for specimen type, test type, patient data, reagents are set at MOH level and then entered consistently throughout a country)
- Customization to a country's needs
- Ability to track lab supplies such as test kits, reagents
- Ability to run reports as specified by a country
- Automatic alerting of data values that may be out of range(reference ranges and panic values are set at the regional or national level)
- Daily logs to be reviewed for data verification
- Simple data backup to a zipped file
- [NEW] BLIS running on a cloud provider
- [NEW] Manual data backup to a version of BLIS running on a remote server
- [NEW] Ability to view statistics for tests reported quantitatively. e.g., how many test results for calcium are in the range of 0.5 to 1
- [NEW] Ability to print results in bulk

As with any properly implemented electronic record system, BLIS may be found over time to improve data accuracy and reduce costs in laboratories.

Benefits seen in labs using BLIS

- Reduced burden for technicians, as results are available soon after testing
- Improved consistency of data entry
- Ability to view patient history and track samples
- Ability to aggregate data and analyze data patterns and trends at a regional or national level
- Printed patient records in place of handwritten records
- Printed daily logs that make the reports look like the paper forms used in the laboratory

3.2 Getting Started

There are three versions of BLIS that currently exist.

Firstly, **BLIS on Windows** was the original version developed for end-users. Stand-alone versions, updates, and packaged content are still publicly available on the C4G BLIS home page, [accessible here](#).

Secondly, **BLIS on the Cloud** is a newly deployed version of BLIS that is capable of running on a Cloud Provider, and was originally intended to be used as an online backup database for aggregating country-wide data for analysis.

Installation Instructions for BLIS on the Cloud

For instructions on installing **BLIS on the Cloud**, please see the [article on Running BLIS on a Cloud Provider](#).

Thirdly, **BLIS in a Devcontainer** is an instantiation of BLIS that allows for developers to specify the development environment, and is intended to be used by developers only.

Installation Instructions for BLIS in a Devcontainer

For instructions on installing **BLIS in a Devcontainer**, please see the [Developer Documentation](#).

BLIS For Windows

BLIS was originally developed to run on Windows using a discontinued project called Server2Go. This packages Apache2, MySQL, PHP, and Firefox together into a package that can be run all at once on a desktop computer. BLIS on Windows is the primary way that end-users are using BLIS, but can and should be used by developers to test updates.

Original BLIS Windows Setup Instructions

These instructions are carried over from a previous version of the user guide. If you are setting up BLIS for the first time, you should ignore these.

If using a server and router, plug in the router first.

- Set up and turn on the server PC and its monitor.
- Navigate to the BLIS home page and select Download
- Save the files to a hard drive.
- Open the BLIS folder on the desktop and double click on BLIS.exe. Wait for a dialog box to appear on the screen. Choose Yes from the two options. The application will be installed automatically and the full login screen will appear.
- This completes installation for a single computer. For networked computers, we recommend setting a static IP address for the network.
- Ensure that the computer is on the network.
- Copy the file *BlisSetup.html* to the computer
- Double click *BlisSetup.html* to install BLIS on the networked computer.
- Wait for the login screen. If the full screen with username, password, and login does not appear, check the URL on the server and make sure they are the same.

INSTRUCTIONS FOR INSTALLATION

1. Navigate to the [C4G BLIS home page](#).
2. Click on the **Download** tab in the top menu bar, then click **Download BLIS v3.8 Complete**.

3. Follow all instructions on the Download page.

Starting BLIS

1. Double-click on the BLIS.exe file.
2. A page requesting login information will appear. Enter in the user's login credentials.

Stopping BLIS

1. After the session is complete, click the **Logout** button in the top right pane of the screen.
2. A popup window will appear where the user can rate their experience with C4G BLIS and write any comments they may have. After entering any feedback, press the **Submit** button to fully logout. Alternatively, press **Skip** to logout immediately without providing any feedback. Press **CLOSE** to cease logging out.

3.2.1 Overview of Roles in BLIS

There are three roles in BLIS.

Firstly, **Directors** (also referenced to as country directors) are a role held by a single individual at the management level of each country. The roles of Directors are to oversee many laboratories using BLIS, summarize data trends from uploaded patient data from across the country, and work with C4G developers to provide user feedback for future versions of BLIS.

Secondly, **Managers** (also referenced as admin users) are the managerial supervisors of laboratories. The roles of Managers are to maintain the user permissions to individual labs and alter individual lab configurations as needed.

Thirdly, **Technicians** are the majority of BLIS users. The role of Technicians is to enter in and verify patient data.

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3.3 Running BLIS on a Cloud Provider

Running BLIS in the cloud is still a new process and there may be issues.

3.3.1 Quick Version

Warning

You must already have an account with a cloud provider to continue, and you must create a virtual machine running a relatively modern Linux distribution.

The minimum amount of RAM required to run the BLIS container is 1 GB. As of writing, this is \$6 USD per month, not including backups.

You can run our official bootstrap script to start BLIS on a new, Ubuntu-based Digital Ocean image:

```
curl https://raw.githubusercontent.com/C4G/BLIS/master/docker/bootstrap.sh | bash
```

You may now proceed to [Running BLIS](#).

If you are not using Ubuntu, or you want to install BLIS manually, follow the instructions below.







3.3.2 Manual Instructions

Creating a Droplet

If you need additional help or feel like something is missing you may want to look at the [Digital Ocean droplet documentation](#) but below are instructions to get you running.

1. Signup for Digital Ocean and start creating a [droplet](#)
2. Choose a region (preferably closest to the country location)

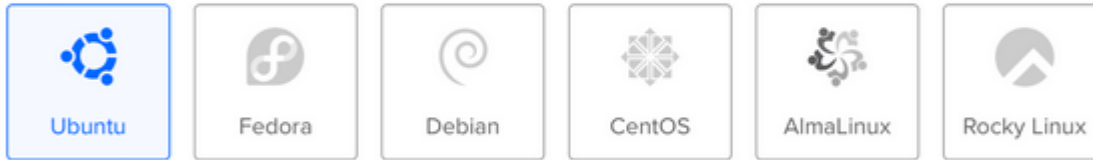
Choose Region

| | | |
|---|---|---|
|  New York |  San Francisco |  Amsterdam |
|  Singapore |  London |  Frankfurt |
|  Toronto |  Bangalore |  Sydney |

1. Select the latest **LTS version** of Ubuntu (20.04 LTS, 22.04 LTS, etc)

Choose an image

OS Marketplace Custom images



Version

22.10 x64 ▼

1. Select the basic droplet type

Choose Size Need help picking a plan? [Help me choose](#)

Droplet Type

| SHARED CPU | DEDICATED CPU | | | |
|--|-----------------|---------------|------------------|-------------------|
| <p>Basic (Currently selected)</p> | General Purpose | CPU-Optimized | Memory-Optimized | Storage-Optimized |

Basic virtual machines with a mix of memory and compute resources. Best for small projects that can handle variable levels of CPU performance, like blogs, web apps and dev/test environments.

1. Choose the regular \$6 a month or equivalent in your local currency CPU type

CPU options

Regular
Disk type: SSD
 Premium Intel
Disk: NVMe SSD
 Premium AMD
Disk: NVMe SSD

| | | | | | |
|---|---|--|--|---|--|
| <p>\$6/mo \$0.009/hour</p> <p>1 GB / 1 CPU 25 GB SSD Disk 1000 GB transfer</p> | <p>\$12/mo \$0.018/hour</p> <p>2 GB / 1 CPU 50 GB SSD Disk 2 TB transfer</p> | <p>\$18/mo \$0.027/hour</p> <p>2 GB / 2 CPUs 60 GB SSD Disk 3 TB transfer</p> | <p>\$24/mo \$0.036/hour</p> <p>4 GB / 2 CPUs 80 GB SSD Disk 4 TB transfer</p> | <p>\$48/mo \$0.071/hour</p> <p>8 GB / 4 CPUs 160 GB SSD Disk 5 TB transfer</p> | <p>\$96/mo \$0.143/hour</p> <p>16 GB / 8 CPUs 320 GB SSD Disk 6 TB transfer</p> |
|---|---|--|--|---|--|

1. Choose password for you authentication method, make sure to store this password somewhere.

Choose Authentication Method ?

SSH Key
Connect to your Droplet with an SSH key pair

Password
Connect to your Droplet as the "root" user via password

Create root password *

Type your password...

PASSWORD REQUIREMENTS

1. Finalize the details

Quantity
Deploy multiple Droplets with the same configuration.

— 1 Droplet +

Hostname
Give your Droplets an identifying name you will remember them by.

ubuntu-s-1vcpu-1gb-ams2-01

Tags

Type tags here

Project

first-project

1. Add BLIS to the Tags section

Finalize Details

Quantity
Deploy multiple Droplets with the same configuration.

— 1 Droplet +

Hostname
Give your Droplets an identifying name you will remember them by.

BLISV3.8-Ubuntu

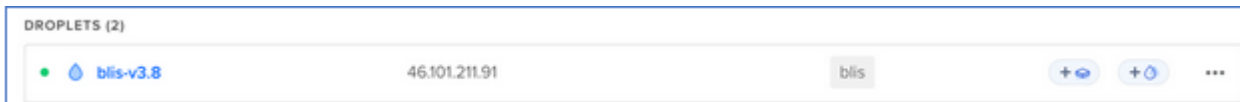
Tags

BLIS | Type tags here

Project

1. Create droplet by pressing the blue "Create Droplet" button, this may take a few minutes. Once it is complete it will be shown on the home page under droplets.





Installing Docker

1. To login to your droplet click on the three dots at the end of the droplet on the home page and choose "Access console" or [use SSH to login](#). The login will be root and the password you created for your droplet earlier. The console will look something like this.

```

cloud.digitalocean.com
Welcome to Ubuntu 22.10 (GNU/Linux 5.19.0-23-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Sun Feb 26 00:24:40 UTC 2023

System load: 0.64404296875   Users logged in:      0
Usage of /:   6.8% of 24.06GB IPv4 address for eth0: 46.101.211.91
Memory usage: 19%          IPv4 address for eth0: 10.19.0.5
Swap usage:   0%           IPv4 address for eth1: 10.114.0.2
Processes:   94

updates can be applied immediately.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

root@blis-v3:~#

```

1. Run this to install docker

```
curl https://raw.githubusercontent.com/C4G/BLIS/master/docker/bootstrap.sh |bash
```

1. Check if `docker-compose` is installed. You can check this by running `docker-compose` if it is **not installed** you should see something like this

```
Command 'docker-compose' not found, but can be installed with:
sudo apt install docker-compose
```

If you see something like

the above run this command

```
sudo curl -L "https://github.com/docker/compose/releases/download/1.29.2/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
```

1. Run this command to allow docker compose to run

```
chmod +x /usr/local/bin/docker-compose
```

Now you're ready to run BLIS!

Running BLIS

1. Install python3-pip :

```
$ sudo apt-get install -y python3-pip
```

2. Install the BLIS Cloud CLI

```
$ pip3 install git+https://github.com/C4G/blis-cloud-cli.git
```

3. Ensure Docker is installed correctly:

```
blis docker status
```

You should get something like this:

```
root@ubuntu-s-1vcpu-1gb-nyc0-00:~# blis docker status
Docker is accessible? Yes
Docker Compose is installed? v2
```

4. Install BLIS:

```
blis install
```

These commands will set up two containers:

1. The `app` container: This contains all of the BLIS source code, as well as the Apache2 web server and PHP 5.6 runtime.
2. The `db` container: This contains the MySQL 5.7 database.

3.3.3 Accessing BLIS

Now, BLIS should be running. You can access it by visiting a URL that looks like:

```
http://[your droplet IP address]/
```



Substitute your droplet IP address above, you should have this from your console.

3.3.4 Upgrading BLIS

When you want to upgrade BLIS, you can follow these commands to pull the latest version of the Docker image and restart the containers:

```
blis update
```

And that's it!

3.3.5 Adding an HTTPS certificate to BLIS

By default, BLIS will only communicate over HTTP on port 80 (see `docker/docker-compose.yml` for the full port configuration.)

BLIS includes support for automatically retrieving and configuring a certificate from [Let's Encrypt](#) for communicating over HTTPS. However, you must already have a domain configured and pointing at the host you are running BLIS on. **This process is not included in this guide.** If you are using DigitalOcean, [there is a guide you can use as a jumping-off point here.](#)

After your domain is pointing to your BLIS host IP address

You will need to add the `BLIS_SERVER_NAME` to the `docker-compose.yml` configuration:

```
services:
  app:
    # This image is automatically built and pushed from the GitHub action in .github/workflows/ folder
    image: "ghcr.io/C4G/blis:latest"
    environment:
      DB_HOST: 'db'
      DB_PORT: '3306'
      DB_USER: '[blis database user here]'
      DB_PASS: '[blis database password here]'
      # Add or uncomment this line, and change the domain value to your own
      BLIS_SERVER_NAME: 'blis.mydomain.com'
```

Then, (re)start BLIS:

```
# if BLIS is running
$ docker-compose down

# bring the database container up first and daemonize it
$ docker-compose up -d db

# bring the app container up alone, synchronously, so we can see the output
$ docker-compose up app
```

Make sure there are no errors in the output. The container will attempt to read the value of `BLIS_SERVER_NAME` and set the appropriate `ServerName` directive in the Apache2 web server configuration and a message will say that it is successful.

Assuming it is successful, you can quit with Ctrl-C and restart as a background process (`docker-compose up -d app`).

In a separate terminal window, while BLIS is running, run the script:

```
$ docker-compose exec app get-https-cert.sh
```

This will verify the environment configuration seems correct and execute the certificate tool for you! Answer the questions about the domain to the best of your knowledge.

Once the domain is verified and the certificate installed, you can visit your BLIS instance with an `https://` URL and hopefully it just works!

3.3.6 Troubleshooting

1. There maybe a error when you call `docker-compose API`, the error will show similar to:

```
root@blis-test:~/BLIS/docker#docker -compose
-bash: /usr/local/bin/docker-compose: Permission denied
```

Using a `chmod +x /usr/local/bin/docker-compose` will help the work.

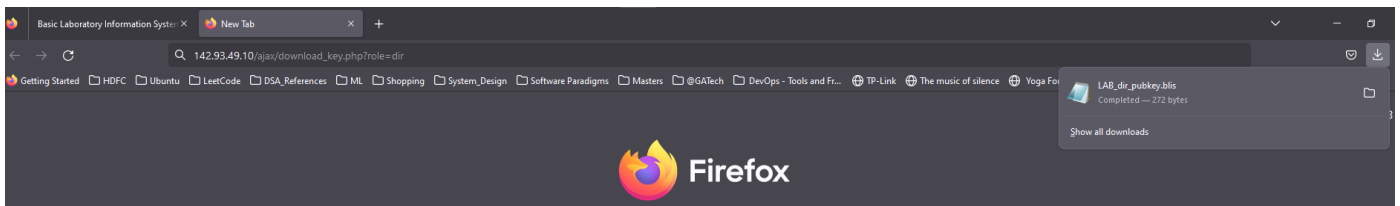
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3.4 Migrating Labs to Cloud

1. Upgrade your labs to version 3.8 or later from [C4G BLIS web page](#).
2. Open your Firefox browser.
3. Set up BLIS on cloud if not already done. You can follow the [Running BLIS on a Cloud Provider](#) guide for instructions.
4. Go to the Digital Ocean hosted BLIS webpage.
5. Now either create encrypted or unencrypted backups using the steps below.

3.4.1 Encrypted lab backup

1. Go to the url http://digital-ocean-blis-host/ajax/download_key.php?role=dir to download the public key needed to encrypt the backup. Example: http://142.93.49.10/ajax/download_key.php?role=dir



2. Next, in order to create an encrypted backup of the local lab:
 - a. Navigate to the **Backup Data** tab.
 - b. Upload the public key downloaded in the previous step.

Basic Laboratory Information System v3.8 Logged in as: onLab_admin | Edit Profile | Work as Technician | Logout

Home Lab Configuration Test Catalog Reports **Backup Data**

Backup encryption key:

Key alias:

Choose key file:

Type of backup: General Backup Anonymized Backup

Tips

Select the receiver who should be able to revert this backup. 'Current Lab' will create backups that can be reverted on this lab for current instance of BLIS. If the receiver you have selected does not exist in the system, you will be prompted to upload their public key. The public key can be obtained by contacting the receiver. Public Key is a .blis file and can be obtained by lab managers under the lab configuration -> Manage Backup Keys -> Download Public Key option.

This PC > Downloads > BLIS

| Name | Date modified | Type | Size |
|---------------------|------------------|-----------|------|
| LAB_dir_pubkey.blis | 09-01-2023 11:21 | BLIS File | 1 |

File name: All Files (*.*)

- c. Click on **Backup** and save the .zip encrypted backup.

3.4.2 Unencrypted lab backup

1. Navigate to the **Lab Configurations** tab.
2. In the left side panel, click **Manage Backup Keys**.
3. Click **Disable Encrypted Backups**.
4. Now, navigate to the **Backup Data** tab.
5. Click on **Backup** and save the .zip encrypted backup.

3.4.3 Importing the backup into the cloud

1. Now the country Director can upload this lab's encrypted backup onto cloud:

- a. Login onto <http://digital-ocean-blis-host/login.php> as a Director.
- b. Navigate to **Lab Configurations**.
- c. Click on **Import Lab Data** and upload the encrypted lab backup.

Basic Laboratory Information System v3.8
Logged in as: cameroon_dir | [Edit Profile](#) | [Logout](#)

Home
Lab Configurations
Lab Managers
Test Catalog
Reports

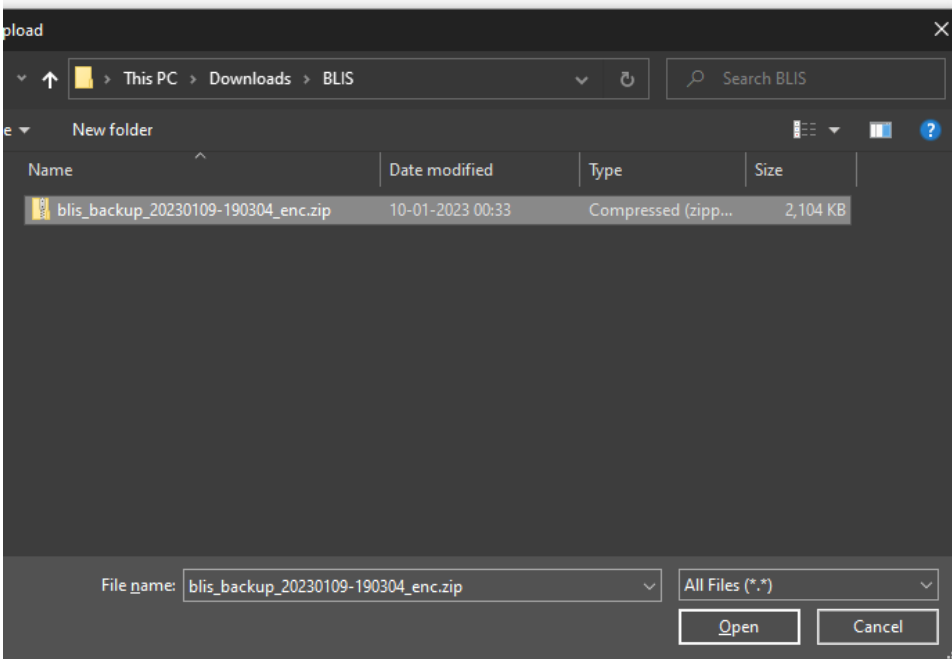
[< Back](#) | **Import Lab Data**

Select backup zip file No file selected.

Replace **ALL** user account, specimen, and configuration data with data from this backup.
Be very careful with this option! You will lose access to ALL lab data other than what you are importing!

Tips

Click on browse and select the backup file to import.



- d. Upon successfully importing the lab you will see something like this:

Basic Laboratory Information System v3.8
Logged in as: cameroon_dir | [Edit Profile](#) | [Logout](#)

Home
Lab Configurations
Lab Managers
Test Catalog
Reports

[< Back](#) | **Import Lab Data**

Select backup zip file blis_backup_20230109-190304_enc.zip

Replace **ALL** user account, specimen, and configuration data with data from this backup.
Be very careful with this option! You will lose access to ALL lab data other than what you are importing!

The file was imported successfully!

Tips
Click on browse and select the backup file to import.

[FAQ](#) | [User Guide](#) | [Comments?](#) | C4G BLIS v3.8 - A joint initiative of C4G @ Georgia Tech, the CDC and participating countries | [English](#) | [Français](#) | [Default](#)

e. And in the **Lab Configuration** tab you would see:

Basic Laboratory Information System v3.8
Logged in as: cameroon_dir | [Edit Profile](#) | [Logout](#)

Home
Lab Configurations
Lab Managers
Test Catalog
Reports

Lab Configurations | [Add New Lab](#) | [Import Lab Data](#) | [Download Public Key](#)

Lab Backups

| # | Facility | Location | Lab Manager | Last Import Date | |
|----|--|----------|-------------|---------------------|----------------------------|
| 1. | Lab Import on 2023-01-09 by cameroon_dir | | admin_1 | 2023-01-09 19:03:33 | Lab Status |

Lab Config Templates

| # | Facility | Location | Lab Manager | |
|----|------------------------------------|----------|--------------|--|
| 1. | FONDATION SOCIALE SUISSE, HD PETTE | MAROUA | pette_admin1 | Export Lab Configuration |

[Add New Lab »](#) | [Update To New Version](#)

[FAQ](#) | [User Guide](#) | [Comments?](#) | C4G BLIS v3.8 - A joint initiative of C4G @ Georgia Tech, the CDC and participating countries | [English](#) | [Français](#) | [Default](#)

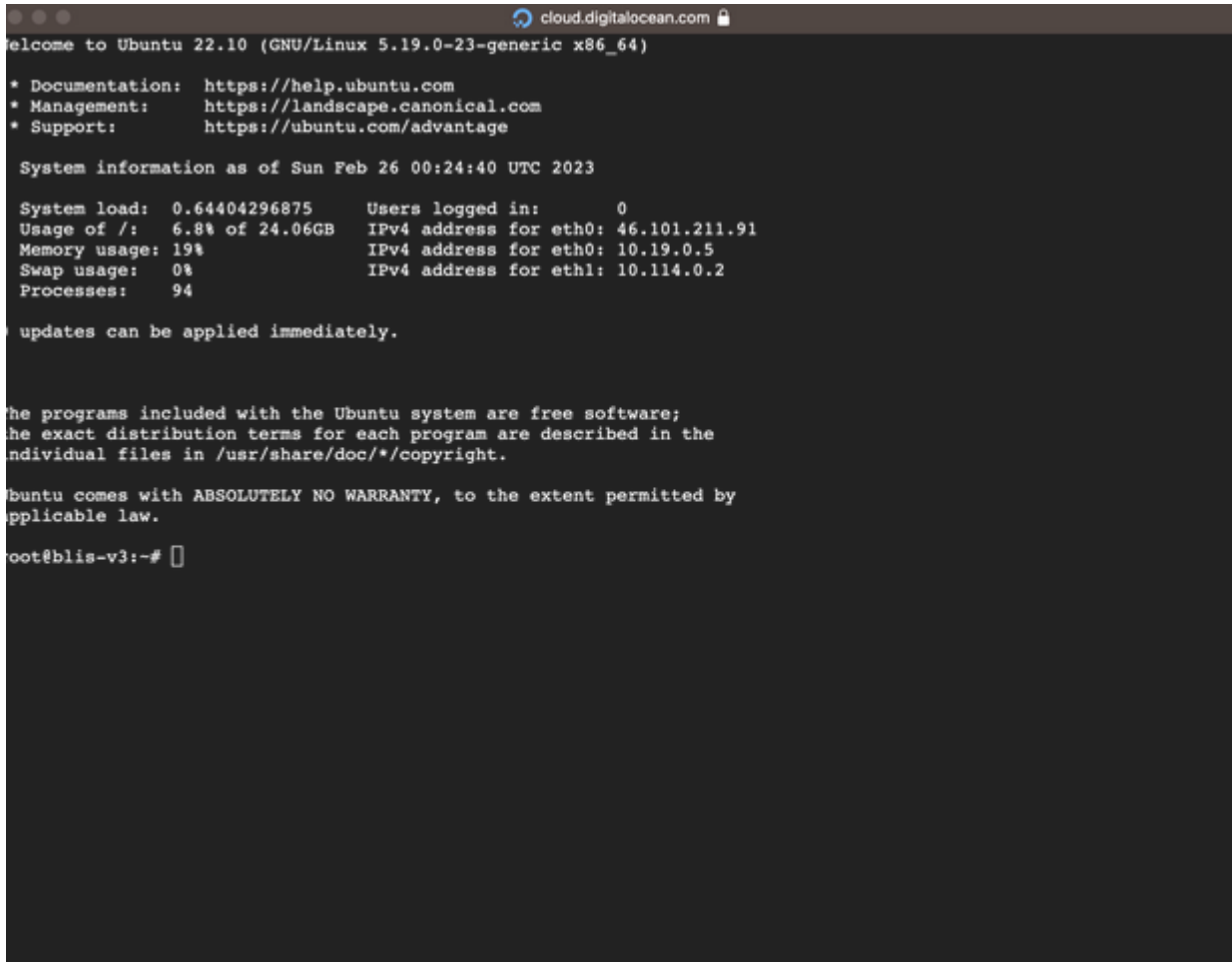
2. The new admin created for the newly imported lab can login using the default credentials using C4G BLIS in the cloud.

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3.5 Updating BLIS Cloud

In order to update BLIS, you will need to access the console. In Digital Ocean, this is the Droplet Console that you used to install BLIS.

Click on the three dots at the end of the droplet on the home page and choose "Access console" or [use SSH to login](#). The login will be root and the password you created for your droplet earlier. The console will look something like this.

A screenshot of a terminal window titled 'cloud.digitalocean.com'. The terminal displays the Ubuntu 22.10 login banner, including documentation, management, and support links. It then shows system information as of Sun Feb 26 00:24:40 UTC 2023, such as system load, usage of /, memory usage, swap usage, and processes. The prompt is root@blis-v3:~#. The terminal text is as follows:

```
cloud.digitalocean.com
Welcome to Ubuntu 22.10 (GNU/Linux 5.19.0-23-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Sun Feb 26 00:24:40 UTC 2023

System load: 0.64404296875   Users logged in: 0
Usage of /: 6.8% of 24.06GB   IPv4 address for eth0: 46.101.211.91
Memory usage: 19%           IPv4 address for eth0: 10.19.0.5
Swap usage: 0%              IPv4 address for eth1: 10.114.0.2
Processes: 94

updates can be applied immediately.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

root@blis-v3:~#
```

3.5.1 Updating blis-cloud-cli

First, update `blis-cloud-cli` using this command:

```
sudo pip3 install -U blis-cloud-cli
```

3.5.2 Updating BLIS

Next, you can update BLIS by running:

```
blis update
```

🕒 2024-11-26

3.6 Director Overview

The Director role allows a user to control some components at a country level. This is organized into tabs, as with the other interfaces.

Lab Configurations

In the **Lab Configurations** tab, the Director can view lab backups that have been imported. A list of the different lab configurations is also displayed, along with links to export each of these lab configurations. This allows a Director to setup a lab configuration in advance and then export it for a new lab to import to streamline the process.

To setup a new lab configuration, click the button to add a new lab. This walks the user through four steps to setup site information, technicians, base configuration, and test types.

Basic Laboratory Information System v3.8 Logged in as: cameroon_dir | [Edit Profile](#) | [Logout](#)

Home | Lab Configurations | Lab Managers | Test Catalog | Reports

[New Lab Configuration](#) | [Cancel](#)

1: Site Information

Facility *

Location *

Country * Cameroon

Lab Manager *

[← Back](#) [Next →](#)

Step 1: Site Information | Step 2: Technicians | Step 3: Base Config | Step 4: Test Types

It is possible to add Technicians during this setup process, but note that additional Technicians can be added later. During setup of the base configuration, an existing lab configuration can be selected from the dropdown menu to use as a base. During the next step, test can be imported from an existing facility by selecting it from the dropdown menu. As with the other steps, the configuration can be further customized later from the **Lab Configuration** tab when logged in and work as a Manager.

Clicking on the name of a facility takes the user to the **Lab Configuration** view, with all the same options available in the Manager view, plus three additional menu options: **General Settings**, **Change Manager**, **Delete Configuration**, and **Import Configuration**. For information on the other menu options and how they work, please go to the [Manager Lab Configuration](#) section. Each of the additional options are covered here.

The **General Settings** option allows the Director to change the name or location of a facility. Additionally, the user can populate the database with random data or clear randomly populated data. The **Change Manager** option is self-explanatory. This option allows the Director to select a user from the dropdown menu as the new Lab Manager. The **Delete Configuration** menu option should be used with caution. This allows the Director to delete an entire lab configuration. Please use this with caution!


Warning

After a Lab Configuration is deleted, it cannot be recovered. Please take caution when proceeding with deleting a lab configuration.

Another functionality available on the **Lab Configuration** tab is importing lab backups. Lab Managers can perform backups and send the backups to the Director. To import a lab backup from the **Lab Configuration** tab, select **Import Lab Data**. Browse to find the zipped backup provided by the lab, and click the import button. A confirmation message will display indicating that the backup was successful or an error message if there is something wrong with the backup.

If the backup is encrypted, it can only be unencrypted with the correct key. If an encrypted backup is desired, first download the public key and share it with the lab. To do this, click the button to download a public key. It will get saved in the local computer's downloads folder by default. Send this file to the lab that is going to perform the backup. The Lab Manager can use the public key to export an encrypted backup from the Backup Data tab, and then share the zipped backup folder with the user, which can be imported as described above.


Who else can edit Lab Configurations?

Lab Configurations can also be set by Lab Managers. [Click here for more details.](#)

Lab Managers

Under the **Lab Managers** tab, the Director can add, edit, or delete Lab Managers. Click **Edit** on an existing manager to change the name, email address, phone number, or language of a manager, or to reset the managers password.


Note

Directors cannot edit/reset passwords for Technicians. Navigate to the **User Accounts** menu option in the **Lab Configurations** tab from the Manager view to edit/reset passwords for Technician accounts.

Test Catalog

The **Test Catalog** tab allows the Director to add country-wide specimens and tests.

Reports

The **Reports** tab allows the Director to build reports for some or all of the labs that are under the country's management. The aggregate reports work much as the aggregate reports do within the Manager view, with two additional options to select a specific test and select which facilities should be included in the report. There is also a menu option to configure some of the aggregation settings (e.g. age ranges) for the reports.

EXPORT TO EXCEL

The process for exporting to an Excel spreadsheet is identical for the director as it is for a lab manager, however, the director can select which lab among those they have access to that they want to generate the report for.

Configurations | Lab Managers | Test Catalog | Reports

Aggregate

Aggregate

Report

Export to Excel

From - -
(dd) (mm) (yyyy)

To - -
(dd) (mm) (yyyy)

Facility

Test Type

- Hepatitis B Surface Antigen
- Hepatitis C Antibodies
- HGB
- HGB Electrophoresis
- HIV DNA PCR
- HIV EIA
- HIV Monitoring Panel

Press and hold the "Ctrl" key to select multiple tests.

Options

- Include patient name
- Include patient birth date
- Include patient sex

[Q](#) | [User Guide](#) | [Comments?](#) | C4G BLIS v3.9 - A joint initiative of C4G @ Georgia Tech, the CDC and participating countries | [English](#) | [Franca](#)

3.7 Manager Overview

The manager interface allows the Manager to do the following:

1. Add, edit, and delete users
2. Change the laboratory configuration settings in the **Lab Configuration** tab in the top menu bar
3. Generate and print reports in the **Reports** tab in the top menu bar

Manager Lab Configuration

The laboratory configuration can be changed by Managers or admin users of BLIS. Here, Lab Managers can change how reports are generated, what patient data is collected, as well as various other settings. In general, laboratory settings are usually initialized by the Country Director, but can be modified to suit individual labs' needs.

SUMMARY

The **Summary** page displays information about the laboratory. Specific information includes the Facility Name, Location, Lab Manager, available Specimen Types, available Test Types, and Technician Accounts allocated to the specific laboratory.

Basic Laboratory Information System v3.8
Logged in as: testlab1_admin | [Edit Profile](#) | [Work as Technician](#) | [Logout](#)

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- [Tests](#)
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- [Modify Language](#)
- [Setup Local Network](#)
- [BLIS Online](#)
- [External Interface](#)
- [Revert To Backup](#)
- [Manage Backup Keys](#)
- [Export Configuration](#)

[Page Help](#)

Summary

| | |
|----------------|---|
| Facility Name | Testlab1 |
| Location | GT |
| Lab Manager | testlab1_admin |
| Specimen Types | Aspirate CSF Dried Blood Spot Nasal Swab Plasma Plasma EDTA Rectal Swab Semen Serum SKIN Sputum Stool Throat Swab U/S Urine V/S Whole Blood |
| Test Types | AFB Alb Alkaline Phosphatase ALT/SGPT Amylase ASLO ASOT (Streptococcal) AST/SGOT Bleeding Time (BT) Blood filaria Blood Type (ABO/Rh) Blood Urea Nitrogen C-Reactive Protein Calcium |

TESTS

The **Tests** page has a drop down menu that opens up to reveal three different options: **Specimen/Test Types**, **Target TAT**, and **Results Interpretation**.

Specimen/Test Types

The **Specimen/Test Types** page allows the Lab Manager to set the specimen and test types as appropriate for their country. Click **Show** to reveal hidden panes and **Hide** to close the panes. Check the box for each specimen type collected or test done at this facility, and click **Submit** to save.

Basic Laboratory Information System v3.8 Logged in as: testlab1_admin | Edit Profile | Work as Technician | Logout

Home | Lab Configuration | Test Catalog | Reports | Backup Data

Summary | Tests | **-Specimen/Test Types** | -Target TAT | -Results Interpretation | Search | Reports | Results | Sites | Inventory | Barcode Settings | Billing | User Accounts | Registration Fields | Doctor Registration Fields

Page Help

Specimen/Test Types

Specimen Types Hide

| Specimen Types | | |
|--------------------------------------|---|---|
| <input type="checkbox"/> Aspirate | <input type="checkbox"/> CSF | <input type="checkbox"/> Dried Blood Spot |
| <input type="checkbox"/> Nasal Swab | <input type="checkbox"/> Plasma | <input type="checkbox"/> Plasma EDTA |
| <input type="checkbox"/> Rectal Swab | <input type="checkbox"/> Semen | <input checked="" type="checkbox"/> Serum |
| <input type="checkbox"/> SKIN | <input type="checkbox"/> Sputum | <input checked="" type="checkbox"/> Stool |
| <input type="checkbox"/> Throat Swab | <input type="checkbox"/> U/S | <input checked="" type="checkbox"/> Urine |
| <input type="checkbox"/> V/S | <input checked="" type="checkbox"/> Whole Blood | |

Test Types Hide

| Test Types | | |
|------------------------------|------------------------------|--|
| <input type="checkbox"/> AFB | <input type="checkbox"/> Alb | <input checked="" type="checkbox"/> Alkaline Phosphatase |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Target TAT

The **Target TAT** page displays turnaround times for tests. To enter or change turnaround time, click **Edit**. The number and unit (such as “24 hours”) change to a text field and a drop-down list. Enter the desired number and choose **Hours** or **Days**. When finished, click the **Submit** button to save changes, or **Cancel** to discard changes. These options are below the list.

Summary

Tests

-Specimen/Test Types

-Target TAT

-Results Interpretation

Search

Reports

Results

Sites

Inventory

[Page Help](#)

Target TAT | [Edit](#)

| Test Type | Turnaround Time |
|----------------------|--------------------------|
| AFB | 2 Days 0 Hours 0 Minutes |
| Alb | 1 Days 0 Hours 0 Minutes |
| Alkaline Phosphatase | 1 Days 0 Hours 0 Minutes |
| ALT/SGPT | 1 Days 0 Hours 0 Minutes |
| Amylase | 1 Days 0 Hours 0 Minutes |
| ASLO | 1 Days 0 Hours 0 Minutes |
| ASOT (Streptococcal) | 1 Days 0 Hours 0 Minutes |
| AST/SGOT | 1 Days 0 Hours 0 Minutes |
| Bleeding Time (BT) | 1 Days 0 Hours 0 Minutes |

Results Interpretation

The **Results Interpretation** page allows the Lab Manager to specify the interpretation for multiple ranges of values for each test type. To view or edit an existing test's result, choose the test type from the drop-down list and click the **Search** button. The current interpretation appears. Edit using the text boxes.

To add a new range to the list, click the **Add Another** link and enter data in the text boxes. Click the **Submit** button to save changes, or **Cancel** to discard them.

[Page Help](#)

[« Back](#) | **Results Interpretation**

Test Type

AFB

Alb

Alkaline Phosphatase

ALT/SGPT

Amylase

ASLO

ASOT (Streptococcal)

AST/SGOT

Bleeding Time (BT)

Blood filaria

Blood Type (ABO/Rh)

Blood Urea Nitrogen

C-Reactive Protein

Calcium

CD4

Chlamydia

Chloride

Clotting Time (CT)

CO2 Bicarbonate

Conjugated/Direct Bilirubin

initiative of C4G @ Georgia Tech, the CDC and participating countries | [English](#) | [Francais](#) | [Default](#)

SEARCH

The **Search** page allows the Lab Manager to configure what results are displayed for each patient when a search is executed. It also permits changing how many results are displayed on each page.

REPORTS

The **Reports** page has a drop down menu that opens up to reveal seven different options: **Infection Report**, **Test/Specimen Grouped Reports**, **Daily Report Settings**, **Enable/Disable Test Reports**, **Test Report Configuration**, **Worksheet**, and **Order Patient Fields**.

Which users can create reports?

Previous functionality of BLIS permitted Technicians to create reports. Currently, creating reports is a functionality only available to Managers and Directors.

Infection Report

The **Infection Report** page generates an aggregate report of laboratory test results for a particular period for one or all lab sections. The tests listed in the report are the ones checked to include on the **Specimen/Test Types** page. Click **Edit** to make changes to the details reported. When finished, click **Submit** button to save changes, **Preview** to view the report, or **Cancel** to discard changes.

Summary

Tests

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Reports

-Infection Report

-Test/Specimen Grouped Reports

-Daily Report Settings

-Enable/Disable Test Reports

-Test Report Configuration

-Worksheet

-Order Patient Fields

Results

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User Accounts

Registration Fields

Page Help

Infection Report | [Edit](#)

| | |
|----------------------|----------------------------------|
| Group By Gender | Yes |
| Group By Age | Yes |
| Age Range (Years) | 0-10 10-20 20-50 50-100 |
| FACSCount | CD4 0-1500 1500-3000 |
| | CD8 0-90 |
| | CD4/CD8 >1- |
| ALT/SGPT | 0-1000 1001-2000 |
| Urine Analysis | No range configuration required. |
| Stool Analysis | No range configuration required. |
| Alkaline Phosphatase | 0-1000 |
| Amylase | 0-1000 |
| AST/SGOT | 0-1000 |
| HGB | 0.5-25 |

Test/Specimen Grouped Reports

The **Test/Specimen Grouped Reports** page allows the Lab Manager to set the **Test Count (Grouped) Report** settings and the **Specimen Count (Grouped) Report** settings. Click **Edit** to change settings. When finished, click the **Submit** button to save changes, or **Cancel** to discard changes.

- Summary
- Tests
- Search
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- Infection Report
- Test/Specimen Grouped Reports
- Daily Report Settings
- Enable/Disable Test Reports
- Test Report Configuration
- Worksheet
- Order Patient Fields
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- Inventory
- Barcode Settings
- Billing
- User Accounts
- Registration Fields

Page Help

Test/Specimen Count Grouped Reports | Cancel

Test Count (Grouped) Report Settings:

Group By Lab Section Yes No

Group By Gender Yes No

Group By Age Yes No

Age Range (Years)

| | | | | | | | | | | | | |
|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|----|
| 0 | 4 | 4 | 9 | 9 | 14 | 14 | 19 | 19 | 24 | 24 | 29 | 29 |
| -34 | 34 | -39 | 39 | -44 | 44 | -49 | 49 | -54 | 54 | -59 | 59 | - |
| 64 | 64 | + | | | | | | | | | | |

[Add Another >](#)

Counts to Display

All registered tests

Only completed tests

Both completed and pending tests (separated by a slash)

Specimen Count (Grouped) Report Settings:

Group By Gender Yes No

Group By Age Yes No

Age Range (Years)

| | | | | | | | | | | | | |
|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|----|
| 0 | 4 | 4 | 9 | 9 | 14 | 14 | 19 | 19 | 24 | 24 | 29 | 29 |
| -34 | 34 | -39 | 39 | -44 | 44 | -49 | 49 | -54 | 54 | -59 | 59 | - |
| 64 | 64 | + | | | | | | | | | | |

[Add Another >](#)

Daily Report Settings

The **Daily Report Settings** page sets the layout of the **Patient Report**, **Daily Log - Specimens**, and **Daily Log - Patients**. Use the drop-down to select the report type, then click **Search**. Check or un-check boxes to show or hide patient, specimen, and test information. If desired, the Lab Manager can upload a .jpg logo file to appear on the report. When finished, click the **Submit** button to save changes, or **Cancel** to discard changes. These options are below the list.

- Summary
- Tests
- Search
- Reports
- Infection Report
- Test/Specimen Count Grouped Reports
- Daily Report Settings
- Enable/Disable Test Reports
- Test Report Configuration
- Worksheet
- Order Patient Fields
- Results
- Sites
- Inventory
- Barcode Settings
- Billing
- User Accounts
- Registration Fields

Page Help

Test/Specimen Count Grouped Reports | Cancel

Test Count (Grouped) Report Settings:

Group By Lab Section Yes No

Group By Gender Yes No

Group By Age Yes No

Age Range (Years)

| | | | | | | | | | | | | |
|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|----|
| 0 | 4 | 4 | 9 | 9 | 14 | 14 | 19 | 19 | 24 | 24 | 29 | 29 |
| -34 | 34 | -39 | 39 | -44 | 44 | -49 | 49 | -54 | 54 | -59 | 59 | - |
| 64 | 64 | + | | | | | | | | | | |

[Add Another >](#)

Counts to Display All registered tests
 Only completed tests
 Both completed and pending tests (separated by a slash)

Specimen Count (Grouped) Report Settings:

Group By Gender Yes No

Group By Age Yes No

Age Range (Years)

| | | | | | | | | | | | | |
|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|----|
| 0 | 4 | 4 | 9 | 9 | 14 | 14 | 19 | 19 | 24 | 24 | 29 | 29 |
| -34 | 34 | -39 | 39 | -44 | 44 | -49 | 49 | -54 | 54 | -59 | 59 | - |
| 64 | 64 | + | | | | | | | | | | |

[Add Another >](#)

Enable/Disable Test Results

The **Enable/Disable Test Results** page allows the Lab Manager to enable or disable specific tests. Items on the left side are disabled; move the test items to the right side to enable them. When finished, click the **Submit** button to save changes, or **Cancel** to discard changes.

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Summary | [Page Help](#)

Tests

Search

Reports

-Infection Report

-Test/Specimen Grouped Reports

-Daily Report Settings

-Enable/Disable Test Reports

-Test Report Configuration

-Worksheet

Enable/Disable Test Reports

| | |
|---|--|
| <ul style="list-style-type: none"> AFB Alb ALT/SGPT Amylase ASLO ASOT (Streptococcal) AST/SGOT Bleeding Time (BT) Blood filaria Blood Type (ABO/Rh) | <ul style="list-style-type: none"> Alkaline Phosphatase |
|---|--|

Test Report Configuration

The **Test Report Configuration** page allows the Lab Manager to visualize the enabled test configurations. Use the drop-down to select the test type from the enabled test list, then click **Search**. Click **Edit** to edit the configuration of the reported test data. Check or un-check boxes to show or hide patient, specimen, and test information. When finished, click the **Submit** button to save changes, or **Cancel** to discard changes.

Worksheet

The **Worksheet** page allows the Lab Manager to create templates for gather patient data in the lab. In lab settings where data are not entered at the point of service, the data entry staff can enter the laboratory's patient information and ordered tests, then print the worksheet so that lab technicians can write test results and other data to be entered into BLIS.

Select the **Lab Section** and **Test Type** and click **Search** to edit the report format. To edit a custom report, click **Edit** to the right of the report. To create a new custom worksheet, click the **Add Custom Worksheet** link at the bottom of the list.

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Logged in as: testlab1_admin | [Edit Profile](#) | [Work as Technician](#) | [Logout](#)

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- Enable/Disable Test Reports
- Test Report Configuration
- Worksheet
- Order Patient Fields
- Results

[Page Help](#)

Worksheet

Lab Section

Test Type

Custom Worksheets Custom Worksheets

| # | Name | |
|----|------------------------|----------------------|
| 1. | CHEMISTRY WORKSHEET | Edit |
| 2. | SEROLOGY WORKSHEET | Edit |
| 3. | PARASITOLOGY WORKSHEET | Edit |
| 4. | BACTERIOLOGY WORKSHEET | Edit |
| 5. | MALARIA WORKSHEET | Edit |

[Add Custom Worksheet »](#)

RESULTS

The **Results** page allows the Lab Manager to edit the parameters displayed in the batch results page. Currently, the editable data is limited to Patient information.

Basic Laboratory Information System v3.8
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- Billing
- User Accounts
- Registration Fields
- Doctor Registration Fields
- Modify Language

[Page Help](#)

Batch Results Fields

Patients

- Patient ID
- Patient Number
- Additional ID
- Gender
- Age
- Date of Birth
- Name
- Registration Date

SITES

The **Sites** page allows the Lab Manager to add, modify, or remove specimen collection sites to the laboratory records. When first spawning a laboratory, only one site - the default site - will exist.

Additional information about the site can be provided in the textboxes - currently, BLIS supports adding in District and Region information. To add another site, click on the **Add Another** hyperlink at the top and fill in textbox with the new site name, then click **Submit**. To go back, click **Cancel**.

INVENTORY

The **Inventory** page is a list of any existing reagents being tracked in BLIS. To add another, click the **Add Item** link above the list and input the name, unit of measurement associated with the reagent, and any miscellaneous remarks about the reagent. After pressing **Submit**, don't forget to add the item's stock. On the **Current Inventory** page, other features include **Log Stock Usage**, **Add Stock**, or **Edit Details**.

| Item | Quantity | Unit | Update | Add | Edit |
|-----------------|----------|------|-----------------|-----------|--------------|
| Drinking Straws | 0 | 100 | Log Stock Usage | Add Stock | Edit Details |

BARCODE SETTINGS

The **Barcode Settings** page configures the settings for barcode formats. Click on the **Page Help** for more details. After changing the settings, click **Submit** to save any edits.

Basic Laboratory Information System v3.8 Logged in as: testlab1_admin | Edit Profile | Work as Technician | Logout

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Barcode Settings

Page Help

Configure Barcode Format Settings

Encoding Format:

Barcode Width:

Barcode Height:

Text Size:

USER ACCOUNTS

The **User Accounts** page shows all the users with access to the system. Here, a Lab Manager can create new user accounts, edit account settings, delete accounts, and monitor account activity.

Click **Add New Account** to enter a new user.

Basic Laboratory Information System v3.8 Logged in as: testlab1_admin | Edit Profile | Work as Technician | Logout

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Doctor Registration Fields

Modify Language

Page Help

User Accounts | Add New Account

| # | Username | Type | | |
|----|----------------|----------------|----------------------|------------------------|
| 1. | testlab1_tech1 | Lab Technician | Edit | Delete |
| 2. | testlab1_tech2 | Lab Technician | Edit | Delete |

User Types | Add New User Type

| Level | Type | Default | | |
|-------|------------------|---------|----------------------|------------------------|
| 1. | Lab Technician | Yes | Edit | Delete |
| 2. | Lab Manager | No | Edit | Delete |
| 3. | BLIS Super-admin | No | Edit | Delete |
| 4. | Country Director | No | Edit | Delete |
| 5. | Lab Receptionist | Yes | Edit | Delete |
| 6. | Lab Receptionist | No | Edit | Delete |

Click **Edit** on a user to edit the user account details or to reset password. User Type dictates the access the user has in the system. **Reset Password** allows the Lab Manager or admin user to enter a new password for this user. Click the **Submit** button to save changes, or **Cancel** to discard.

To remove a user account, click the **Delete** link for that user. A confirmation box appears. Click **OK** to complete the deletion, or **Cancel** to keep that user's information.

[Back](#) | [New Lab User](#)

Username: testlab1_tech1
 Name:
 Email:
 Phone No.:
 Language: ▼
 Type: ▼
 Display Name at Results Entry? Yes
[Reset Password](#)

Tips

Edit user account details or reset password by entering a new one.

REGISTRATION FIELDS

The **Registration Fields** page shows the configuration of the patient registration page. It allows the Lab Manager to create mandatory fields and hide the fields that are not used, per the country’s protocols. It also allows for creation of certain custom fields for patient registration and new Specimen addition which may be needed by certain labs only.

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- [Manage Backup Keys](#)

[Page Help](#)

Registration Fields | [Edit](#)

| | |
|------------------------------|--|
| Patients - Patient ID | In use (Mandatory field) (allows duplicates) |
| Patients - Additional ID | Not in use |
| Patients - Patient Number | In use Reset: Daily |
| Patients - Date of Birth | In use |
| Specimens - Specimen ID | Not in use |
| Specimens - Comments | Not in use |
| Specimens - Lab Receipt Date | In use (Mandatory field) |
| Specimens - Referred Out | Not in use |
| Specimens - Physician | In use |
| Date Format | d-m-Y |

[Reorder Fields](#)

[Custom Fields - Specimens | \[Add New\]\(#\) \[?\]](#)

No custom fields exist

[Custom Fields - Patients | \[Add New\]\(#\) \[?\]](#)

| # | Name | Type | |
|----|-------------------|------|----------------------|
| 1. | Date of Diagnosis | Date | Edit |

To customize fields, click **Edit** to make changes: check the box to display a field, uncheck to hide. Set fields as required. After editing, click **Update** button below the fields to save changes, Cancel to discard.

To create new fields, choose the **Add New** link for which to add, and enter field name and type. Click **Submit** button to save changes, **Cancel** to discard.

Also, the Lab Manager can customize the order of the registration fields for Patient and Specimen Registration forms.

DOCTOR REGISTRATION FIELDS

The **Registration Fields** page shows the configuration of the patient registration page. There is currently an issue opened to address the duplicity of the previous **Registration Fields** page.

MODIFY LANGUAGE

One of the features of BLIS is the ability to toggle between languages. The **Modify Language** page allows the Lab Manager to change the language for a few pages using this option. The pages are listed as a drop-down menu.

Select the language and category (type of page or section). Select **Search** button to view or edit the text. When finished, click **Submit** button to save changes, or **Cancel** to discard.

SETUP LOCAL NETWORK

The **Setup Local Page** is an instructional page on how to set up a local network for a hospital or laboratory. Please access it from BlisSetup.html in the main folder, then enter login credentials (username and password).

EXTERNAL INTERFACE

The **External Interface** Laboratory settings allows the Lab Manager to set up an interface with external devices or websites. The currently featured interface for alternative patient registration system is DHIMS 2. Others may be added upon request.

The **Interfaced Equipment** page allows the Lab Manager to select the equipment to be interfaced through BLISInterInterfaceClient. Configurations may be set in the *BLISInterInterfaceClient.ini* file.

Basic Laboratory Information System v3.8
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Home
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- Summary
- Tests
- Search
- Reports
- Results
- Sites
- Inventory
- Barcode Settings
- Billing
- User Accounts
- Registration Fields

Page Help

Select Equipment to be interfaced through BLISInterfaceClient

-

-

Mindray BS-200E

ABX Pentra 60 C+

ABX MACROS 60

BT 3000 Plus

Sysmex SX 500i

BD FACSCalibur

Mindray BC 3600

Selectra Junior

GeneXpert

ABX Pentra 80

Sysmex XT 2000i

Vitalex Flexor

REVERT TO BACKUP

In case of system failure, the **Revert to Backup** page allows the Lab manager to revert to a previously backed-up copy of the data. Clicking the link presents the dates of the previous backups, click one to select which data set to load.

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Page Help

Backup Version

Not Found

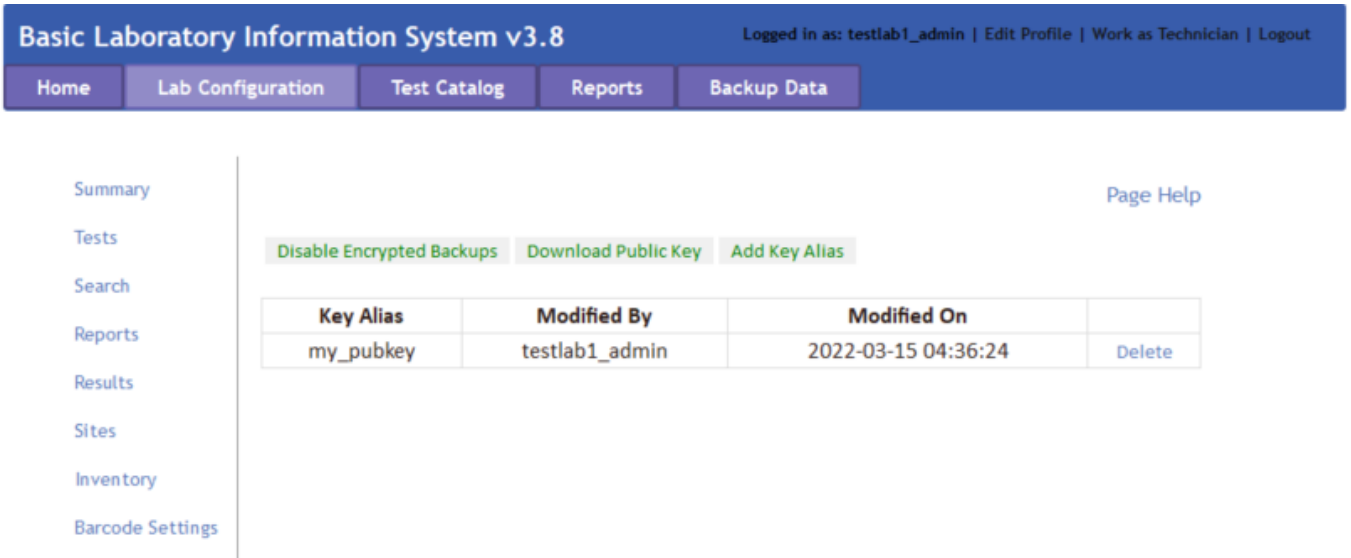
Include Language Settings? Yes No

Backup current version before reverting? Yes No

MANAGE BACKUP KEYS

The **Manage Backup Keys** page creates, manages, or deletes key pairs in order to encrypt laboratory backup data. Encrypting laboratory backup data with a unique key-pair ensures that only the personnel with the correct private key will be able to successfully decrypt the encrypted data with the correlated public key.

The home screen of the **Manage Backup Keys** page displays the list of currently active public keys. In the example image below, only one public key is available for use, with a key alias of "my_pubkey".

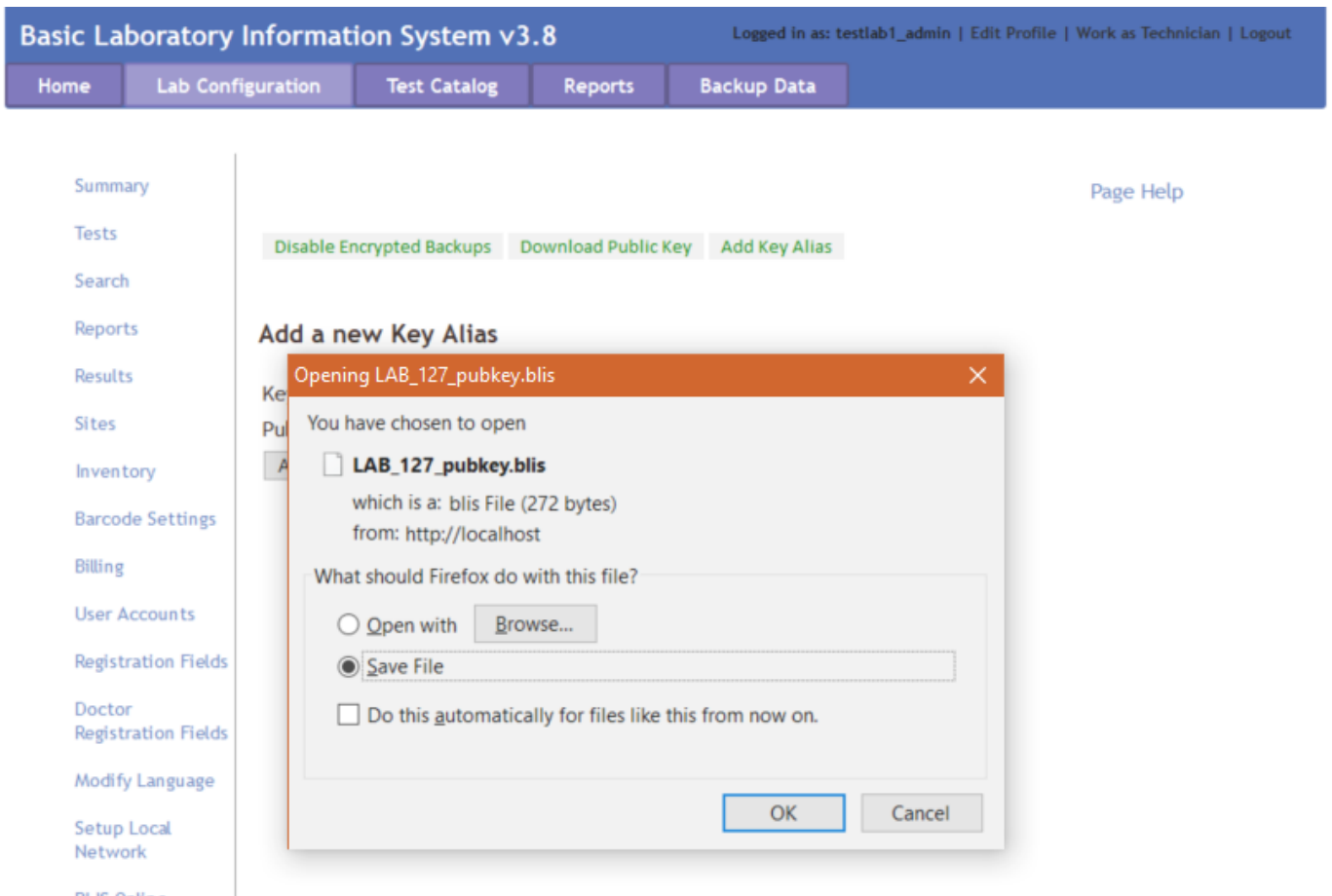


Disable Encrypted Backups

Toggle this button to disable or enable encrypted backups. It is recommended to enable encrypted backups to protect private patient information.

Download Public Key

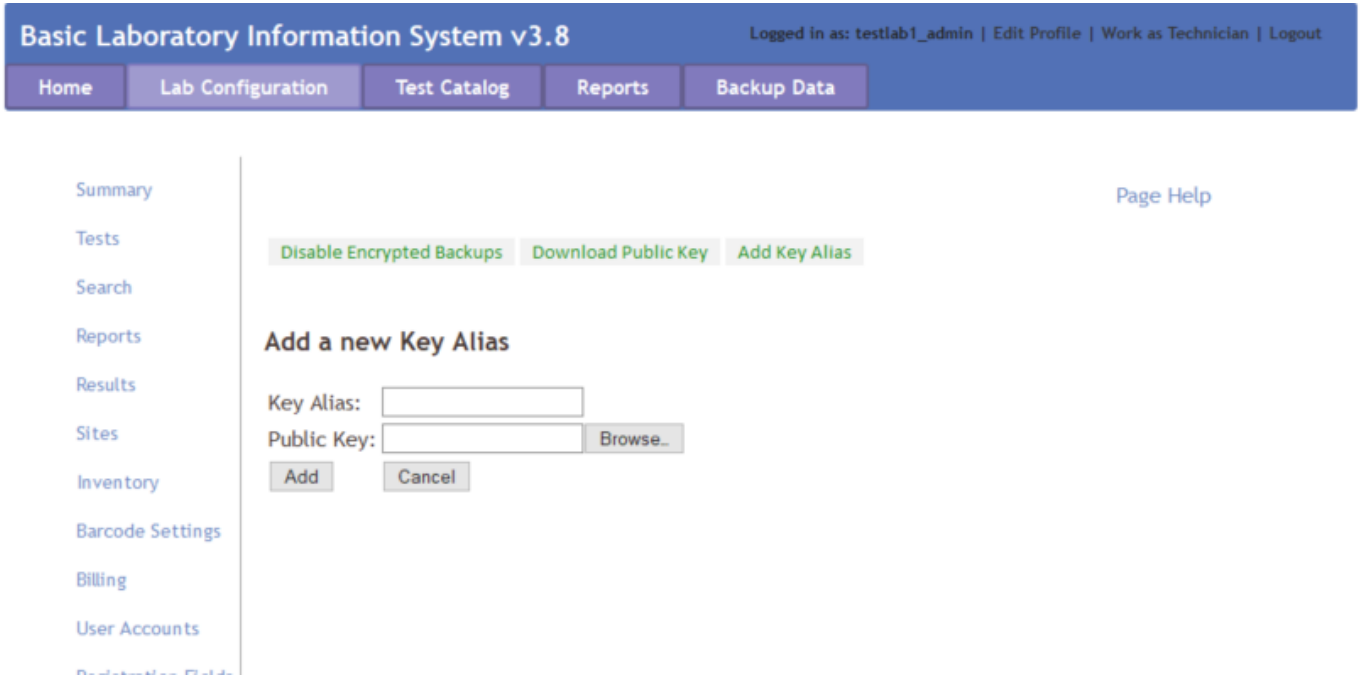
This button opens a popup window prompting the user to download a public key. This key should be saved onto the computer.



Add Key Alias

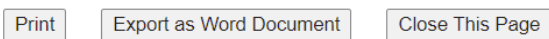
To add a new public key, click **Add Key Alias**. Fill free to enter in any key alias names here. We recommend entering in some identifying information that describes the origin of the public key. For example, if the public key was provided by the country director, the key alias name could be "country_director_pubkey".

To upload the public key, click **Browse** and use the File Upload navigational controls to select the desired public key (ending in a .blis file extension). After selecting the correct public key, click **Add** to add the public key to the list of currently active public keys, or **Cancel** to discard changes.



EXPORT CONFIGURATION

The **Export Configuration** page exports all configuration settings to Microsoft Word. Clicking this link opens a new browser tab with a preview showing all preset and custom fields as well as report settings. The preview has three buttons at the top: Print, Export as Word document, and Close. Click the **Print** button to open the print dialog box; **Export as Word document** to create a file named **blisreport_[date of report].doc**, which may be opened or saved, or **Close** to close this browser tab.



Facility: Testlab1 - GT
Date: 21-04-2022

Registration Fields

| | |
|----------------|------------------|
| Facility Name | Testlab1 |
| Location | GT |
| Lab Manager | testlab1_admin |
| Specimen Types | Aspirate |
| | CSF |
| | Dried Blood Spot |
| | Nasal Swab |
| | Plasma |
| | Plasma EDTA |
| | Rectal Swab |
| | ~ |

Test Catalog

The **Test Catalog** page allows the Manager to add or edit specimen or test types used in their laboratory.

Basic Laboratory Information System v3.8

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SPECIMEN TYPE

The **Specimen Type** page allows for adding or editing specimen types used in the laboratory.

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| | | |
|----|------------------|----------------------|
| 1. | Aspirate | Edit |
| 2. | CSF | Edit |
| 3. | Dried Blood Spot | Edit |
| 4. | Nasal Swab | Edit |
| 5. | Plasma | Edit |
| 6. | Plasma EDTA | Edit |
| 7. | Rectal Swab | Edit |

Click **Add New** to enter a new specimen type. Required fields are **Name**, which is a text box for entering the name of the specimen, and **Compatible Tests**, which allows the user to check the tests that can be performed using that specimen. **Ctrl-F** opens the Find function to search for a test. Another feature is a **Description** of the specimen type, which is optional.

To edit the information about a specimen type, find the editable specimen type and then click the **Edit** link in the far-right column.

Click **Submit** button to save changes, **Cancel** to discard.

Basic Laboratory Information System v3.8

Logged in as: testlab1_admin | Edit Profile | Work as Technician | Logout

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Edit Specimen Type | [Cancel](#)

| | |
|------------------|-----------------|
| Name | Aspirate |
| Description | Aspirate Sample |
| Compatible Tests | AFB |

Name *

Description

Compatible Tests * [?]

| | | |
|--|---|---|
| <input checked="" type="checkbox"/> AFB | <input type="checkbox"/> Alb | <input type="checkbox"/> Alkaline Phosphatase |
| <input type="checkbox"/> ALT/SGPT | <input type="checkbox"/> Amylase | <input type="checkbox"/> ASLO |
| <input type="checkbox"/> ASOT (Streptococcal) | <input type="checkbox"/> AST/SGOT | <input type="checkbox"/> Bleeding Time (BT) |
| <input type="checkbox"/> Blood filaria | <input type="checkbox"/> Blood Type (ABO/Rh) | <input type="checkbox"/> Blood Urea Nitrogen |
| <input type="checkbox"/> C-Reactive Protein | <input type="checkbox"/> Calcium | <input type="checkbox"/> CD4 |
| <input type="checkbox"/> Chlamydia | <input type="checkbox"/> Chloride | <input type="checkbox"/> Clotting Time (CT) |
| <input type="checkbox"/> CO2 Bicarbonate | <input type="checkbox"/> Conjugated/Direct Bilirubin | <input type="checkbox"/> Creatine Kinase |
| <input type="checkbox"/> Creatinine | <input type="checkbox"/> CSF | <input type="checkbox"/> Culture |
| <input type="checkbox"/> Cytobacteriologic Examination of Urine (CBEU) | <input type="checkbox"/> Erythrocyte Sedimentation Rate (ESR) | <input type="checkbox"/> examen bacteriologique |

TEST TYPE

The **Test Type** page allows for adding or editing test types used in the laboratory. It is controlled the same way as Specimen Types.

Basic Laboratory Information System v3.8

Logged in as: testlab1_admin | Edit Profile | Work as Technician | Logout

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[Specimen Types](#)

[Test Types](#)

[Page Help](#)

Test Types | [Add New](#)

| # | Test | Lab Section | |
|----|----------------------|--------------|----------------------|
| 1. | AFB | Bacteriology | Edit |
| 2. | Alb | parasitology | Edit |
| 3. | Alkaline Phosphatase | Chemistry | Edit |
| 4. | ALT/SGPT | Chemistry | Edit |
| 5. | Amylase | Chemistry | Edit |
| 6. | ASLO | Serology | Edit |
| 7. | ASOT (Streptococcal) | Serology | Edit |
| 8. | AST/SGOT | Chemistry | Edit |

Click **Add New** to enter a new test type. Required fields are **Name**, which is a text box; **Lab Section**, a drop-down list that includes an option to add a new section; **Measures**, which are editable; and **Compatible Specimens**, which allows the user to check one or more specimens that can be used for this test.

Optional fields include **Description** (text box), **Clinical Data**, **Panel Test** (a check-box, checked for Yes), **Hide Patient's Name** (drop-down Yes/No), **Prevalence Threshold** (text box), and **Target TAT** (text box).

To edit the information about a test type, select the editable test type and then click the **Edit** link in the far-right column.

Click **Submit** button to save changes, or **Cancel** to discard.

Basic Laboratory Information System v3.8 Logged in as: testlab1_admin | [Edit Profile](#) | [Work as Technician](#) | [Logout](#)

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Edit Test Type | [Cancel](#)

| | |
|-----------------------------|--------------|
| Name | AFB |
| Lab Section | Bacteriology |
| Description | - |
| Measures | AFB |
| Compatible Specimens | Aspirate |
| Hide Patient Name in Report | No |
| Prevalence Threshold | 70 |
| Target TAT | 48 |
| Cost To Patient | 0.00 USD |

Tips
To know more about a particular field select on the [?] next to the field name.

Name *

Lab Section *

Description

Clinical Data [?]

Measures [?]

| Delete Name * | Type * | Values * | Unit /Default Value[?] |
|------------------------------|---------------------|----------|------------------------|
| <input type="checkbox"/> AFB | Alphanumeric Values | N / P | <input type="text"/> |

[Add Another -](#)
[Add Another +](#)

Reports

The **Reports** page is used to generate reports ranging from **Daily Reports** to **Aggregate Reports**.

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Daily Reports

- [Patient Report](#)
- [Daily Log](#)

Aggregate Reports

- [Prevalence Rate](#)
- [Counts](#)
- [Turnaround Time](#)
- [Infection Report](#)
- [User Statistics](#)
- [Test Specific Reports](#)

DAILY REPORTS

The **Daily Reports** should be generated each day for both the Patient Report and also Daily Log.

Patient Report

The **Patient Reports** page generates reports for each searchable patient.

Search for the patient by Patient Name, Patient Number, or Patient ID and Lab Section to which the patients' specimen are registered against. Click the **Search** button to start search. Select the desired patient from the list if more than one patient matches the search criteria. Click **View Report** to see all data for that patient, or **Select Tests** to see tests ordered and the results for that patient.

Additionally, the user can edit the report to show activity within a date range, include pending tests for which results are not available, set printing information, set tests to print 1 per page, or export to Word using the controls at the top of the page.

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Daily Reports

- [Patient Report](#)
- [Daily Log](#)

Aggregate Reports

- [Prevalence Rate](#)
- [Counts](#)
- [Turnaround Time](#)
- [Infection Report](#)
- [User Statistics](#)
- [Test Specific Reports](#)

Patient Report

Patient Name Contains

Lab Section All

Tips

Select Patient Name, Number or ID to retrieve patient's lab reports

FAQ | User Guide | Comments? | C4G BLIS v3.8 - A joint initiative of C4G @ Georgia Tech, the CDC and participating countries | [English](#) | [Français](#) | [Default](#)

Daily Log

The **Daily Log** creates a report of the day's activity.

Set the date range to reflect the log to print. The Lab Manager can run a report of the day's activity by patients seen (by clicking **Patient Records**), or by tests run (by clicking **Test Records**). If **Test Records** is selected, logs can be generated for one lab section or for one type of test. The default settings are test records, all sections, and all tests. The report opens in a new browser tab and has **Print** and **Export** controls at the top of the page.

Also patient barcodes for each patient with the number of specimens they have handed over can also be printed over a given a range of time by selecting the **Patient Barcode** option.

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Daily Reports

- [Patient Report](#)
- [Daily Log](#)

Aggregate Reports

- [Prevalence Rate](#)
- [Counts](#)
- [Turnaround Time](#)
- [Infection Report](#)
- [User Statistics](#)
- [Test Specific Reports](#)

Daily Log

From - -
(dd) (mm) (yyyy)

To - -
(dd) (mm) (yyyy)

Records

Test Records

Patient Records

Patient Barcode

Lab Section All

Test All

Tips

Print all records handled on a given day.

FAQ | User Guide | Comments? | C4G BLIS v3.8 - A joint initiative of C4G @ Georgia Tech, the CDC and participating countries | [English](#) | [Français](#) | [Default](#)

AGGREGATE REPORTS

Aggregate Reports generates reports for specific data selected by the user. There are currently six types of reports to generate:

1. **Prevalence Rate** which opens an infection graph and prevalence rates. It gives the prevalence of a particular laboratory test result based on the number of testsdone and the results.
2. **Counts** which can open a specified kind of ungrouped or grouped, test/specimen/doctor statistics. It generates a report for a particular time period of the number of tests, specimens, or doctor statistics.
3. **Turnaround Time** which opens the average test-wise turnaround times for the lab test reports, either for all or specific tests.
4. **Infection Report** which opens an Infection Report for a specified laboratory. It generates reports of infections by patient age and gender.
5. **User Statistics** which displays user specific statistics and user activity logs.
6. **Test Specific Reports** which provides information on specific tests, and can be specified to an individual site.

EXPORT TO EXCEL

The Export to Excel feature allows the lab manager to export the results of tests across the whole lab for a given date range. The user can select to exclude patient data from the final report.

Configuration
Test Catalog
Reports
Backup Data

Export to Excel

From - -
(dd) (mm) (yyyy)

To - -
(dd) (mm) (yyyy)

Facility

Test Type

Alkaline Phosphatase
 ALT/SGPT
 Amylase
 ASLO
 AST/SGOT
 Bleeding Time (BT)
 Blood Urea Nitrogen
 Press and hold the "Ctrl" key to select multiple tests.

Options

- Include patient name
- Include patient birth date
- Include patient sex

[Q](#) | [User Guide](#) | [Comments?](#) | C4G BLIS v3.9 - A joint initiative of C4G @ Georgia Tech, the CDC and participating countries | [English](#) | [Franca](#)

Backup Data

The **Backup Data** feature was created for two reasons - to revert to a previously backed-up copy in cases of system failure, but also to create a backup file of the current laboratory patient data for uploading to a **BLIS on Cloud** version.

For example, one intended use of the second scenario would be to upload the current laboratory data to the director's instantiation of BLIS. A conglomeration of multiple labs' data would permit the director to visualize larger trends in the healthcare data across several laboratories. This would aid the director in understanding the needs of individual labs, and permit them to mobilize aid catered to the specific needs of each laboratories.

The below image is the default view of the **Backup Data** page.

The screenshot shows the 'Backup Data' page in the Basic Laboratory Information System v3.8. The user is logged in as 'testlab1_admin'. The navigation menu includes Home, Lab Configuration, Test Catalog, Reports, and Backup Data. The 'Backup encryption key' is set to 'Current Lab (default key)'. The 'Type of backup' is set to 'Anonymized Backup'. A 'Backup' button is visible. A 'Tips' box on the right provides instructions on selecting a receiver and creating backups that can be reverted. The footer contains links for FAQ, User Guide, and Comments, along with version information and language options.

BACKUP DATA WITH PRE-EXISTING KEY

If a public key has already been registered to the personnel account through the **Lab Configuration > Manage Backup Keys** functionality, then the key should appear in the drop-down menu. In the image below, *my_pubkey* is a pre-existing public key that had been previously registered. Please select the key from the drop-down menu.

This screenshot is similar to the previous one, but the 'Backup encryption key' drop-down menu is open, showing three options: 'Current Lab (default key)', 'my_pubkey' (which is highlighted), and 'New key...'. The 'Type of backup' remains 'Anonymized Backup'. The 'Tips' box and footer are identical to the previous screenshot.

BACKUP DATA WITHOUT PRE-EXISTING KEY

If the desired public key has not already been registered to the account, then please select *New Key..* from the drop-down menu. Two new boxes should appear. Give the key a name (recommend either the lab name or lab ID), and click on the **Browse** button. Find the public key that was previously downloaded onto the user's computer and select it to upload.

Basic Laboratory Information System v3.8 Logged in as: testlab1_admin | [Edit Profile](#) | [Work as Technician](#) | [Logout](#)

[Home](#) | [Lab Configuration](#) | [Test Catalog](#) | [Reports](#) | [Backup Data](#)

Backup encryption key: ▼
Key alias:
Choose key file: [Browse...](#)
Type of backup: General Backup Anonymized Backup
[Backup](#)

Tips

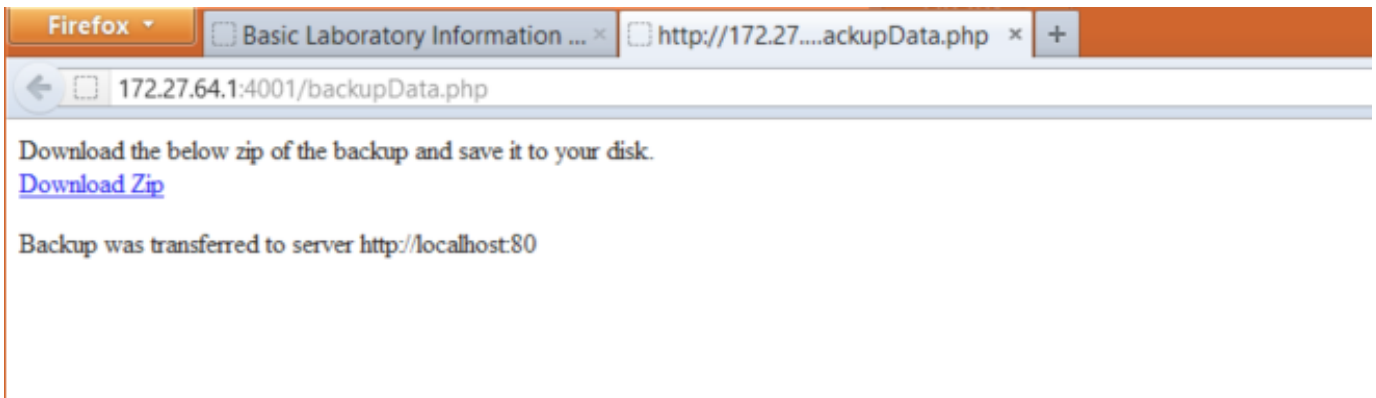
Please select the receiver who should be able to revert this backup from the drop-down list.

Current Lab is the default key and will create backups that can be reverted on this lab for the current instance of BLIS.

If the receiver does not appear in the drop-down list, you will be prompted to upload a new public key, which is a .blis file and can be obtained by lab managers under the Lab Configuration > Manage Backup Keys > Download Public Key.

[FAQ](#) | [User Guide](#) | [Comments?](#) | C4G BLIS v3.8 - A Joint Initiative of C4G @ Georgia Tech, the CDC and participating countries | [English](#) | [Francais](#) | [Default](#)

After selecting the public key of choice, please choose the desired backup (General or Anonymized) and then click **Backup** to trigger the data backup. A new page should pop up, confirming that the backup was successful. Please click the **Download Zip** hyperlink to download the zipped file to the user's Desktop.



🕒 2024-11-26

3.8 Technician Overview

The technician interface allows the Technician to do the following:

1. [Register new patients](#) and [look up existing patients](#).
2. [Add results for a patient based on the specimens provided](#).
3. [Manage existing reagents currently being tracked in BLIS](#).

Users with Admin rights can click the **Work as Manager** link in the top right corner to switch to the Lab Manager view.

Users with only Technician rights can access their profile page by clicking **Edit Profile**. Users can edit their profile to add or change email, phone, and language. Click on the **Change Password** link to change the user's password.



The Username cannot be changed after creation.

Registration

The **Registration** page allows the Technician to register new patients or lookup existing patients based on name, patient ID or number.

ADD NEW PATIENT

To add a new patient: Click the **Search** button without entering any search criteria. The **Add New Patient** link appears, illustrated in the red circle in the image below.

The screenshot shows the top navigation bar of the Basic Laboratory Information System v3.8. The user is logged in as 'testlab1_tech1' and can access 'Edit Profile' or 'Logout'. The navigation menu includes 'Home', 'Registration', 'Results', 'Search', 'Inventory', and 'Backup Data'. Below the navigation bar, there is a 'Page Help' link. The main content area is titled 'Patient Look-up' and contains a search form with 'Patient Name' and 'Contains' dropdown menus, a search input field, and a 'Search' button. A red circle highlights the 'Add New Patient >' link.

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Also, if no results are found for the desired patient, an option to create a new patient will be presented and the searched name will automatically be filled into the new patient form. Click the link and wait for a dialog box to appear on the screen. Fill in the blank fields and check the appropriate elements. Elements with asterisks * are mandatory.

Click on **Submit** to save, or **Cancel** to discard changes and return to patient look-up page.

Basic Laboratory Information System v3.8

Logged in as: testlab1_tech1 | [Edit Profile](#) | [Logout](#)[Home](#)[Registration](#)[Results](#)[Search](#)[Inventory](#)[Backup Data](#)[Page Help](#)[New Patient](#) | [« Back to Patient Look-up](#)

| | |
|----------------------|--|
| Patient ID * | <input type="text" value="123456"/> |
| Patient Number | <input type="text" value="1"/> |
| Name * | <input type="text" value="John Doe"/> |
| Gender * | <input checked="" type="radio"/> Male <input type="radio"/> Female <input type="radio"/> Other |
| Age | <input type="text"/> <input type="text" value="Years"/> |
| | <i>Only one of Age or Date of Birth is required for entry.</i> |
| Date of Birth | <input type="text" value="01"/> - <input type="text" value="01"/> - <input type="text" value="1901"/> <small>(dd) (mm) (yyyy)</small> |
| Date of Diagnosis | <input type="text" value="21"/> - <input type="text" value="04"/> - <input type="text" value="2022"/> <small>(dd) (mm) (yyyy)</small> |
| Date of Registration | <input type="text" value="21"/> - <input type="text" value="04"/> - <input type="text" value="2022"/> <small>(dd) (mm) (yyyy)</small> |
| | <input type="button" value="Submit"/> <input type="button" value="Cancel"/> |

[FAQ](#) | [User Guide](#) | [Comments?](#) | C4G BLIS v3.8 - A joint initiative of C4G @ Georgia Tech, the CDC and participating countries | [English](#) | [Français](#) | [Default](#)

PATIENT LOOK-UP

Once a patient has been registered, the Technician can use the **Registration** page to view or edit patient profiles. Additionally, a specimen the patient has provided for a particular test can also be registered.

Click on the drop-down list and select patient name, ID, or number. Type in the blank space the patient name, ID, or number. Enter all available patient information for the best search results.

Basic Laboratory Information System v3.8 Logged in as: testlab1_admin | [Edit Profile](#) | [Work as Manager](#) | [Logout](#)

[Home](#)
[Registration](#)
[Results](#)
[Search](#)
[Inventory](#)
[Backup Data](#)

[Page Help](#)

Patient Look-up

This page allows us to register new patients or lookup existing patients based on name, patient ID or number.

| Patient Number | Patient ID | Name | Gender | | | | |
|----------------|------------|----------------|--------|-----------------------------------|------------------------------|--------------------------------|--------------------------------|
| - | 72097 | Aaron Acevedo | M | Register Specimen | View Profile | Delete Profile | Update Profile |
| - | 47390 | Aaron Berg | F | Register Specimen | View Profile | Delete Profile | Update Profile |
| - | 98303 | Aaron Gonzalez | F | Register Specimen | View Profile | Delete Profile | Update Profile |
| - | 49342 | Aaron Trujillo | M | Register Specimen | View Profile | Delete Profile | Update Profile |

ADD OR EDIT A SPECIMEN RECORD

To add or edit a specimen record, first begin by finding the patient to whom the specimen belongs to. Then, click the **Register Specimen** link to the right of the patient name.

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[Page Help](#)

Patient Look-up

This page allows us to register new patients or lookup existing patients based on name, patient ID or number.

| Patient Number | Patient ID | Name | Gender | | | | |
|----------------|------------|----------------|--------|-----------------------------------|------------------------------|--------------------------------|--------------------------------|
| - | 72097 | Aaron Acevedo | M | Register Specimen | View Profile | Delete Profile | Update Profile |
| - | 47390 | Aaron Berg | F | Register Specimen | View Profile | Delete Profile | Update Profile |
| - | 98303 | Aaron Gonzalez | F | Register Specimen | View Profile | Delete Profile | Update Profile |
| - | 49342 | Aaron Trujillo | M | Register Specimen | View Profile | Delete Profile | Update Profile |

Fill in the blank fields and check the appropriate elements. Elements with asterisks * are mandatory.

Basic Laboratory Information System v3.8 Logged in as: testlab1_admin | [Edit Profile](#) | [Work as Manager](#) | [Logout](#)

[Home](#) | [Registration](#) | [Results](#) | [Search](#) | [Inventory](#) | [Backup Data](#)

[Page Help](#)Specimen Registration | Accession No. 20220507-2 | [Cancel](#)

| | |
|--------------------|--|
| Patient Number * | <input type="text"/> |
| Specimen Type * | -Select- |
| Tests * | -Select specimen type first- |
| Lab Receipt Date * | <input type="text" value="07"/> - <input type="text" value="05"/> - <input type="text" value="2022"/> <small>(dd) (mm) (yyyy)</small> |
| Physician | <input type="text" value="Dr."/> <input type="text" value="Enter physician's name"/> |

* Mandatory Field

| | |
|----------------------|---------------|
| <u>Name</u> | Aaron Acevedo |
| <u>Gender</u> | M |
| <u>Age</u> | 56 Years |
| <u>Date of Birth</u> | 04-04-1966 |

[Add Another Specimen »](#) [Cancel](#)

Click on **Submit** to save, or **Cancel** to discard changes and return to patient look-up page. Click **Add Another Specimen** to add another specimen for this patient.

Results

The **Results** page allows the Technician to see, evaluate, and verify results for collected specimens.

SINGLE SPECIMEN RESULTS

This option allows the Technician to add results for a patient based on the specimens provided and Lab sections to which the specimen tests are registered. Click on the drop-down list and select patient name, ID, or number. Type in the field at least 2 characters to search.

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| | |
|--|---|
| <p>Single Specimen Results</p> <p>Batch Results</p> <p>Verify Results</p> <p>Worksheet</p> <p>Lab Section-wise Results</p> | <p>Single Specimen Results</p> <p>Patient Name <input type="text"/> Contains <input type="text"/></p> <p>Lab Section <input type="text" value="ALL"/></p> <p><input type="button" value="Search"/></p> |
|--|---|

To add or edit a specimen record: Find the patient as above and then click the **Enter Results** link to the right of the patient name. Fill in the blank fields and check the appropriate elements.

Click on **Submit** to save, or **Cancel** to discard changes.

BATCH RESULTS

This option allows the Technician to add results for a particular Test Type.

Select a test for which to find results. Set a date range, then click Search. The results appear without patient names. Click on **Submit** to save, or **Cancel** to discard changes.

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Results
Search
Inventory
Backup Data

Single Specimen Results

Batch Results

Verify Results

Worksheet

Lab Section-wise Results

Batch Results

Test Type

From - -
(dd) (mm) (yyyy)

To - -
(dd) (mm) (yyyy)

Tips

If you cannot see any information other than Test Name, Results and the Skip Option, please tell your administrator to configure it from Worksheet Configuration

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VERIFY RESULTS

This option allows the Technician to verify the result based on the test type. It shows the list of results for all patients whose results have not been verified. Here, results can be modified and entered prior to verifying.

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Verify Results

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Verify Results

Test Type

Tips

If you cannot see any information other than Test Name, Results and the Skip Option, please tell your administrator to configure it from Worksheet Configuration

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Select a **Test Type** and click **Search**. All test results for that test appear. Look over the test results for accuracy. Edit the results as appropriate. When finished, click on **Verify**, or **Cancel** to discard changes. Choosing **Verify** opens a confirmation dialog box.

Click **OK** to mark results as verified, **Cancel** to discard changes.

WORKSHEET

This option generates a worksheet based on the Lab Section and Test Type. In lab settings where data are not entered at the point of service, the data entry staff enter patient information and the tests ordered, then print the worksheet so that lab

technicians can write test results and other data to be entered into BLIS. Custom worksheet which can be created by Admins using Lab Configuration > Tests > Reports > Worksheet.

Create a blank worksheet by choosing the **Keep Blank** option and specifying the number of rows needed. Click **Submit** to create the worksheet.

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Batch Results

Verify Results

Worksheet

Lab Section-wise Results

Worksheet

Lab Section

Test Type

OR

Custom Worksheet

Keep Blank? Yes No

Tips

If you cannot see any information other than Test Name, Results and the Skip Option, please tell your administrator to configure it from Worksheet Configuration

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After generating the worksheet, click on a column heading to sort the table by that field. Other features include **Print** in portrait (default) or landscape view, **Export as a Word Document**, or **Close** the page. If **Export** is selected, the default option is to open the Word document. The document can be printed or saved from Word.

Search

This page allows the Technician to search for a patient by name, number, or ID. Enter a partial name or ID (at least 2 characters) to generates a list of matches.

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Search

Patient

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Click **View Profile** to view the patient's profile and test history.

From the test history section, click **Details** for specimen information. Then, choose **Get Report** for a specimen report; **Track Actions** to view a log of actions on that specimen, or **Enter Results** to enter the specimen analysis results. A report can be generated from the test history section on the profile page by clicking the **Report** link.

From the profile page, other features include can also **Register New Specimen**, **Update Profile**, or **Print Patient Report**.

Inventory

CURRENT INVENTORY

This link displays the reagent quantities currently in stock. It is not editable. To edit the list, click **Add Reagent**.

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Barcode Scan Search:

[Add Item](#) | [Generate Barcodes](#) | **Current Inventory**

| | | | | | |
|------------------------|----------------------------|------------------------|--------------------------|-----------------------|------------------------|
| Item ⌵ | Quantity ⌵ | Unit ⌵ | Update ⌵ | Add ⌵ | Edit ⌵ |
|------------------------|----------------------------|------------------------|--------------------------|-----------------------|------------------------|

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ADD ITEM

Click **Add Item** to add a new item to the list. Update the stock as more reagents are acquired by adding the reagent name, quantity received, receiver name, and remarks.

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[« Back](#) | **Add New Item**

| | |
|----------------|---|
| Item * | <input style="width: 100%;" type="text"/> |
| Unit | <input style="width: 100%;" type="text"/> |
| Remarks | <input style="width: 100%; height: 30px;" type="text"/> |

Tips

Add new Item by completeing this form. Stocks can then be added for these items. Item name is required. Entering units for the item is optional. As you type letters in item name field, item with similar names are displayed below.

[Cancel](#)

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Click **Submit** to save changes.

GENERATE BARCODES

Clicking **Generate Barcodes** allows the Technician to generate a unique barcode. To do so, enter text into the field on the page, and press **Generate**. After generating the barcode, print them by pressing the **Print** button.

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Code:

Remove 
test tubes 50 ml

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Backup Data

The Backup Page is similarly designed to the Backup Data feature available for Lab Managers.

See Also

The Backup Data functionality can be found in the [Lab Manager section on Backup Data](#).

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3.9 Glossary

Admin - Designation for a user that has control over lab configuration settings. Also known as a Lab Manager.

Aggregate - Type of report that collects data over a period of time and presents it to the user.

Barcodes - Used in inventory management to create printable 'barcode' labels for reagents.

Director - Designation for a user that oversees many laboratories, typically at the country level. Manages lab configuration standardization.

Grouped Reports - Reports that cover multiple types of information.

Inventory - Interface for managing reagents and supplies.

Lab Configuration - Collection of customizable settings relating to the collection and storage of data.

Manager - Another name for an Admin user. Also known as a Lab Manager.

Patient - Entry for a patient whose specimen tests are performed on.

Prevalence Rate - The percentage of rate occurrence of a particular result of tests.

Reagent - Term used in inventory control in BLIS. Denotes any physical supply that requires tracking in the inventory system.

Registration - The act of entering a patient into the BLIS program. Creates a unique patient entry that can be associated with specimens and tests.

Reports - Pages that collect metrics for various types of data. The scope of these reports varies from individual patients to entire groups of laboratories.

Results - The recorded outcome of tests performed on specimens.

Specimen - An entry representing a physical specimen or reading taken from a patient.

Specimen Type - Classification for different types of specimens.

Technician - A designation for a user who is tasked with entering data into BLIS.

Test - An entry representing a test or reading taken from a specimen.

Test Type - Classification for different types of tests.

Turnaround Time - A measurement of the time it takes to receive a result, once a specimen is collected.

User - Any person or entity that logs into the BLIS program.

Verify - An action performed on test entries that validates the results for further use.

Worksheet - Customizable, printable sheets for improving the speed at which information is recorded in a physical sense (i.e. not entered *directly* into the BLIS program.)

3.10 Experimental: BLIS Cloud Command-Line Interface

The BLIS Cloud CLI is an experimental way to install and manage BLIS on cloud-based virtual machines.

⚠️ This tool is in preview!

Unless you are comfortable debugging issues, you should instead use the [article on Running BLIS on a Cloud Provider](#).

3.10.1 Installation

The tool is intended to be used on **Ubuntu** installations only. In order to install the tool, you must first install the prerequisites:

```
sudo apt-get update
sudo apt-get install -y python3-pip
echo "export PATH=\"\$HOME/.local/bin:\$PATH\"" | tee -a ~/.bashrc
source ~/.bashrc
```

Then you can install the tool with:

```
pip3 install -U git+https://github.com/C4G/blis-cloud-cli.git
```

3.10.2 Usage

Installing Docker

You can check the status of Docker with:

```
blis docker status
```

The tool will check to see if Docker is installed and configured correctly. If Docker is not installed, then you should run:

```
blis docker install
```

Checking the status of BLIS

```
blis status
```

This command will check the status of BLIS: whether or not it is running, and if the system is supported.

BLIS Installation

```
blis install
```

This command will install the BLIS configuration file to `~/.blis/` and provision the database as a Docker container.

Starting BLIS

```
blis start
```

This command will start BLIS.

BLIS Update

```
blis update
```

This command will update the container used by BLIS. If BLIS is running, it will stop and start BLIS as needed.

Stopping BLIS

```
blis stop
```

This command will stop BLIS.

Accessing log files

```
blis logs application  
blis logs database
```

These two log files are generated by the BLIS application. The `application` log is most useful for debugging issues.

```
blis logs apache2/error  
blis logs apache2/access
```

These two log files are generated by the Apache2 webserver. The `apache2/error` log contains PHP errors useful for debugging issues.

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